

Endovascular Techniques for Ruptured Aortic Aneurysms

by R. Clement Darling III, MD

Chief, Division of Vascular Surgery

The Vascular Group, Albany Medical Center

Elective aortic aneurysm repair has evolved over the past decade. Today, the majority of patients are evaluated for endovascular treatment and only those who do not meet the anatomic criteria are offered open surgical reconstruction. More recently, we have extended this technology to patients who present with ruptured abdominal and/or thoracic aortic aneurysms.

The patient is placed on an endovascular table in the operating room. Hypotensive hemostasis is allowed as long as end organ function is maintained. Once a unilateral femoral artery cut-down is completed under local or general anesthesia, wire access is obtained and an intraarterial sheath placed. Through this, an aortic occlusion balloon is advanced into the thoracic aorta. Unstable patients require immediate balloon inflation. Otherwise, the device is left in position in case there is sudden decompensation. The contralateral femoral artery cut-down ensues and an appropriately sized sheath is advanced for the endograft main body insertion. At this point, the endovascular repair is treated much like elective surgery. If the balloon has to be inflated, which occurred 20 percent of the time in our series, then the contralateral wire can be advanced into the thoracic aorta after a brief balloon deflation. In the setting of an infrarenal abdominal aortic aneurysm rupture, the main body can be deployed using normal techniques and, once in position, a second balloon placed up through that main body while the primary balloon is discarded.

After the balloon exchange, the contralateral limb is cannulated and the remainder of the endograft is completed. Completion angiography is crucial. As long as the patient is hemodynamically stable with no endoleak, sheaths are removed and arteries repaired.

This technique has reduced the mortality of ruptured abdominal aortic aneurysm from 50 percent to less than 20 percent in our experience.

To learn more about your vascular health and find a vascular surgeon visit VascularWeb.org.